

What is claimed is:

1. A method of preventing migration of a cell by increasing intracellular cyclin-dependent kinase inhibitor p27 activity.
- 5 2. The method of claim 1, wherein the cell is a smooth muscle cell or a tumor cell.
- 10 3. A method of treating a subject's cardiovascular disease, which comprises administering to the subject a compound which increases intracellular cyclin-dependent kinase inhibitor p27 activity, thereby alleviating the subject's cardiovascular disease.
- 15 4. The method of claim 3, wherein the cardiovascular disease is atherosclerosis, arteriopathy after heart transplantation, or restenosis after angioplasty or coronary stent placement.
(mb B2)
- 20 5. A method of inhibiting tumor metastasis in a subject, which comprises administering to the subject a compound which increases intracellular cyclin-dependent kinase inhibitor p27 activity, thereby inhibiting tumor metastasis.
- 25 6. The method of claim 1, 3, or 5, wherein cyclin-dependent kinase inhibitor p27 activity is increased by increasing C3 exoenzyme activity.

7. A method of identifying a chemical compound that
inhibits cellular migration, which comprises
contacting cells whose migration is inhibited
when intracellular cyclin-dependent kinase
inhibitor p27 activity is increased, or
contacting an extract from said cells, with the
chemical compound under conditions suitable for
increasing p27 activity, and detecting an
increase in p27 activity in the presence of the
chemical compound so as to thereby identify the
chemical compound as a compound which inhibits
cellular migration.
- 15 8. The method of claim 7, wherein the chemical
compound is not previously known to inhibit
cellular migration.
- 20 9. A method of screening a plurality of chemical
compounds not known to inhibit cellular
migration to identify a chemical compound which
inhibits cellular migration, which comprises:
- 25 (a) contacting cells whose migration is
inhibited when intracellular cyclin-dependent
kinase inhibitor p27 activity is increased, or
contacting an extract from said cells, with the
plurality of chemical compounds under conditions
suitable for increasing p27 activity;
- 30 (b) determining if p27 activity is increased in
the presence of the plurality of chemical
compounds; and if so

(c) separately determining if p27 activity is increased in the presence of each compound included in the plurality of chemical compounds, so as to thereby identify any compound included therein as a compound which inhibits cellular migration.

5 10. The method of claim 7 or 9, wherein the cells are smooth muscle cells or tumor cells.

10 11. The method of claim 7 or 9, wherein the cells are vertebrate cells.

15 12. The method of claim 11, wherein the vertebrate cells are mammalian cells.

13. The method of claim 12, wherein the mammalian cells are human cells.

20 14. A chemical compound identified by the method of claim 7 or 9.

25 15. A pharmaceutical composition comprising (a) an amount of a chemical compound identified using the method of claim 7 or 9, or a novel structural and functional homolog or analog thereof, capable of passing through a cell membrane and effective to increase intracellular cyclin-dependent kinase inhibitor p27 activity and (b) a pharmaceutically acceptable carrier capable of passing through the cell membrane.

PCT/EP2003/002650

16. A pharmaceutical composition comprising an amount of a chemical compound identified using the method of claim 7 or 9 effective to inhibit cellular migration and a pharmaceutically acceptable carrier.
- 5
17. A method for preparing a composition which comprises admixing a carrier and a pharmaceutically effective amount of a chemical compound identified by the method of claim 7 or 9 or a novel structural and functional analog or homolog thereof.
- 10
18. A method for making a composition of matter which inhibits cellular migration which comprises identifying a chemical compound using the method of claim 7 or 9, and then synthesizing the chemical compound or a novel structural and functional analog or homolog thereof.
- 15
- 20
19. A method of treating a subject with a cardiovascular disease which comprises administering to the subject a therapeutically effective amount of a chemical compound identified by the method of claim 7 or 9, or a novel structural and functional analog or homolog thereof.
- 25
- 30
20. The method of claim 19, wherein the cardiovascular disease is atherosclerosis, arteriopathy after heart transplantation, or
- Ar B 2*

restenosis after angioplasty or coronary stent placement.

- or B2*

5 21. A method of inhibiting tumor metastasis in a subject which comprises administering to the subject a therapeutically effective amount of a chemical compound identified by the method of claim 7 or 9, or a novel structural and functional analog or homolog thereof.

10

15 22. Use of a chemical compound identified by the method of claim 7 or 9 for the preparation of a pharmaceutical composition for treating an abnormality, wherein the abnormality is alleviated by inhibiting cellular migration.

20 23. The use of claim 22, wherein the abnormality is a cardiovascular disease or a tumor metastasis.

25 24. The use of claim 23, wherein the cardiovascular disease is atherosclerosis, arteriopathy after heart transplantation, or restenosis after angioplasty or coronary stent placement.

25